Eaton® 9PX PowerPass® Distribution Modules and Transformers 9PXTFMR5, 9PXPPDM2, 9PXTFMR11, and 9PXPPDM1 User's Guide

For use with 9PX 5000/6000/8000/11000 VA UPS Models

Powering Business Worldwide

Class A EMC Statements

FCC Part 15

NOTE This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

EN 62040-2

Some configurations are classified under EN 62040-2 as "Class-A UPS for Unrestricted Sales Distribution." For these configurations, the following applies:

WARNING

This is a Class A-UPS Product. In a domestic environment, this product may cause radio interference, in which case, the user may be required to take additional measures.

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Requesting a Declaration of Conformity

Units that are labeled with a CE mark comply with the following harmonized standards and EU directives:

- Harmonized Standards: EN 62040-1 and EN 62040-2 (2006-6)
- EU Directives: 2006/95/EC, Council Directive on equipment designed for use within certain voltage limits
  2004/108/EC, Council Directive relating to electromagnetic compatibility

The EC Declaration of Conformity is available upon request for products with a CE mark. For copies of the EC Declaration of Conformity, contact:

Eaton Power Quality SAS
110, Rue Blaise Pascal
38334 St ISMIER
FRANCE
Phone: +33 476 00 66 66

Special Symbols

The following are examples of symbols used on the UPS or accessories to alert you to important information:

RISK OF ELECTRIC SHOCK - Indicates that a risk of electric shock is present and the associated warning should be observed.

CAUTION: REFER TO OPERATOR'S MANUAL - Refer to your operator's manual for additional information, such as important operating and maintenance instructions.

This symbol indicates that you should not discard the UPS or the UPS batteries in the trash. This product contains sealed, lead-acid batteries and must be disposed of properly. For more information, contact your local recycling/reuse or hazardous waste center.

This symbol indicates that you should not discard waste electrical or electronic equipment (WEEE) in the trash. For proper disposal, contact your local recycling/reuse or hazardous waste center.

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Chapter 1 Introduction

The Eaton® 9PX PowerPass Distribution Module (9PX PPDM) and 9PX Transformer models are designed to operate as accessories with Eaton 9PX 5000/6000/8000/11000 VA uninterruptible power systems (UPSs).

Features

The 9PX PPDM and 9PX Transformer basic features are:

- Provide surge protection if the UPS is not present
- Provide extra surge protection when the UPS is present
- Replace or upgrade the UPS without losing power to the protected equipment using the Maintenance Bypass feature (for 9PX PPDMs only)
- Voltage selection for 208 Vac or 240 Vac input
- Choice of plug-receptacle or terminal-block wired models
- Variety of output outlets
- Breaker protection
- Bypass and voltage selection switches on selected models

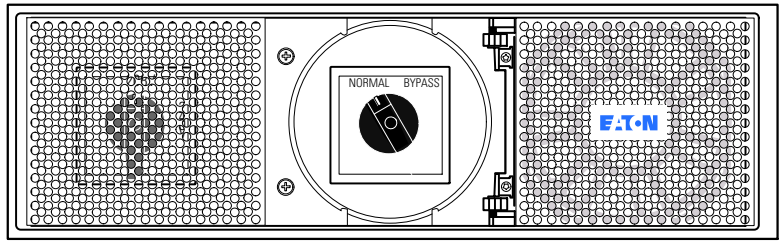
Models

There are four Eaton 9PX PPDM and 9PX Transformer models:

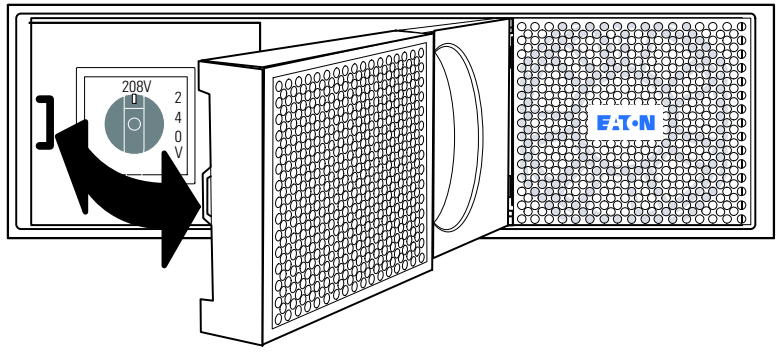
- 9PXTFMR5
- 9PXPPDM2
- 9PXTFMR11
- 9PXPPDM1

Figure 1 illustrates front views of the 9PX PPDM and 9PX Transformer models.

Front Cover with Center Cover Attached (all models)



Front Cover with Center Cover Removed to Access Bypass Switch (9PX PPDMs only)



Front Cover with Center Cover Open to Access Voltage Selection Switch
(all models except 9PXTFMR11, which uses terminal-block wiring for voltage selection)

Figure 1. Front Cover and Operation Switches

System Configuration Options

Several system configuration offerings combine the 9PX 5000/6000/8000/11000 VA UPS models with other units in the 9PX solution suite, including the 9PX PPDMs and 9PX Transformers, the 9PX 240V Extended Battery Module (EBM), and the external Maintenance Bypass (MBP) accessories.

9PX PPDM Models

The 9PX PPDM models are combined with 5000 VA and 6000 VA 9PX UPS in four system configurations:

- 9PXPPDM1 configured with a 5000 VA 9PX UPS
- 9PXPPDM1 configured with a 6000 VA 9PX UPS
- 9PXPPDM2 configured with a 5000 VA 9PX UPS
- 9PXPPDM2 configured with a 6000 VA 9PX UPS

9PX Transformer Models

The 9PX Transformer models are combined with 9PX 5000/6000/8000/11000 VA UPS models (as well as EBMs and MBPs) in five system configurations:

- 9PXTFMR5 with a 5000 VA 9PX UPS
- 9PXTFMR5 with a 6000 VA 9PX UPS
- 9PXTFMR5 (as well as a 240V EBM and MBP) configured with an 8000 VA 9PX UPS
- 9PXTFMR5 (as well as a 240V EBM and MBP) configured with an 11000 VA 9PX UPS
- 9PXTFMR11 (as well as a 240V EBM) configured with an 11000 VA 9PX UPS

NOTE *See "System Configuration Connections" on page 40 for illustrations of the system configurations.*

Chapter 2 Safety

Safety Warnings

IMPORTANT SAFETY INSTRUCTIONS
SAVE THESE INSTRUCTIONS

This manual contains important instructions that you should follow during installation and maintenance of the Eaton 9PX PowerPass Distribution Modules (PPDMs), 9PX Transformers, and 9PX UPS. Please read all instructions before operating the equipment and save this manual for future reference.

DANGER

The UPS contains **LETHAL VOLTAGES**. All repairs and service should be performed by **AUTHORIZED SERVICE PERSONNEL ONLY**. There are **NO USER SERVICEABLE PARTS** inside the UPS.

CAUTION

- To reduce the risk of fire or electric shock, install this UPS in a temperature and humidity controlled, indoor environment, free of conductive contaminants. Ambient temperature must not exceed 40°C (104°F). Do not operate near water or excessive humidity (95% maximum).
- For models with terminal-block wired outputs (9PXPPDM2 and 9PXTFMR11), overcurrent protection for the output AC circuit(s) is to be provided by others.
- For pluggable equipment (9PXPPDM1 and 9PXTFMR5), the socket-outlet shall be installed near the equipment and shall be easily accessible.
- Disconnection Device. For 9PXPPDM2, a disconnect switch shall be provided by others for AC input and output circuit.
- Disconnection Device. For 9PXTFMR11, the disconnection device of the UPS used with this power distribution module also serves as the AC input disconnection device of this power distribution module. A disconnect switch shall be provided by others for AC output circuit.
- Do not overload the 9PX PPDM or 9PX Transformers. For 120V output voltage, the output of L1 or L2 can only be half-loaded.

Chapter 3 Equipment Installation

This chapter provides installation instructions for the Eaton 9PX PowerPass Distribution Modules (PPDMs) and 9PX Transformers as follows:

- Equipment and accessory kit inspection
- Tower configuration setup
- Rack configuration setup

Inspecting the Equipment

If any equipment has been damaged during shipment, keep the shipping cartons and packing materials for the carrier or place of purchase and file a claim for shipping damage. If you discover damage after acceptance, file a claim for concealed damage.

To file a claim for shipping damage or concealed damage: 1) File with the carrier within 15 days of receipt of the equipment; 2) Send a copy of the damage claim within 15 days to your service representative.

Checking the Accessories

NOTE *Packaging must be destroyed according to waste management standards. Recycling icons are displayed for easy selection.*

Verify that the accessory items listed in Table 1 are included with the 9PX PPDM and 9PX Transformers.

Table 1. Accessories

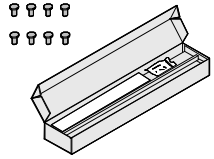
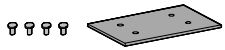
Item	Description
	(1) Manual
	(2) Rails and mounting screws for rackmount cabinet installation in standard 19-inch rack bays, in accessory box
	(1) Joining bracket and mounting screws for tower configuration, in the accessory box
	(2) Mounting brackets and mounting screws for rackmount cabinet installation, in the accessory box
	9PXTFMR11 models only. (1) Transformer cable used from UPS Output to Transformer Input, in the accessory bag
	9PXPPDM2 and 9PXTFMR11 models only. (2) Cable glands used as strain relief for hardwired cables between the UPS and the 9PXPPDM2 or 9PXTFMR11, in the accessory bag

Table 2 lists the tools that are needed to install the 9PX PPDM and 9PX Transformers.

Table 2. Installation Tools

Item	Description
	• Phillips® cross-head screwdriver • Flat-head screwdriver

Tower Setup

CAUTION

- DO NOT install the 9PX PPDMs and 9PX Transformers in a hermetically-closed environment without any exchange of air.
- The 9PX PPDMs and 9PX Transformers are heavy (see the Specifications chapter). A minimum of two people are required to lift the cabinets.

NOTE *The order of a tower installation, from left to right, is the 9PX PPDM or 9PX Transformer, 9PX EBM, and the 9PX UPS.*

To set up a tower configuration:

1. **Do this only if the UPS is already installed and operating:** Shut down the UPS before installing a 9PX PPDM or 9PX Transformer. Refer to shutdown instructions in the appropriate 9PX UPS user's guide for your system configuration.

NOTE *Eaton recommends a minimum of 150 mm (5.9") free space behind the UPS rear panel.*

2. Position the cabinet upright. Turn the Eaton logo to align with the top of the cabinet. Ensure additional cabinets are upright.
3. Group the cabinets in the correct order.

NOTE *Joining brackets are required to stabilize the upright cabinets in installations with two or more cabinets. A joining bracket is provided in the 9PX PPDM or 9PX Transformer accessory box in the shipping carton.*

NOTE *If you are adding a cabinet to an existing tower configuration, only add a single joining bracket between the 9PX PPDM or 9PX Transformer and the next cabinet in the configuration.*

4. Locate the joining bracket in the rail kit box.
5. Align each joining bracket with the adjacent cabinet screw holes and secure with the supplied screws (see Figure 2).

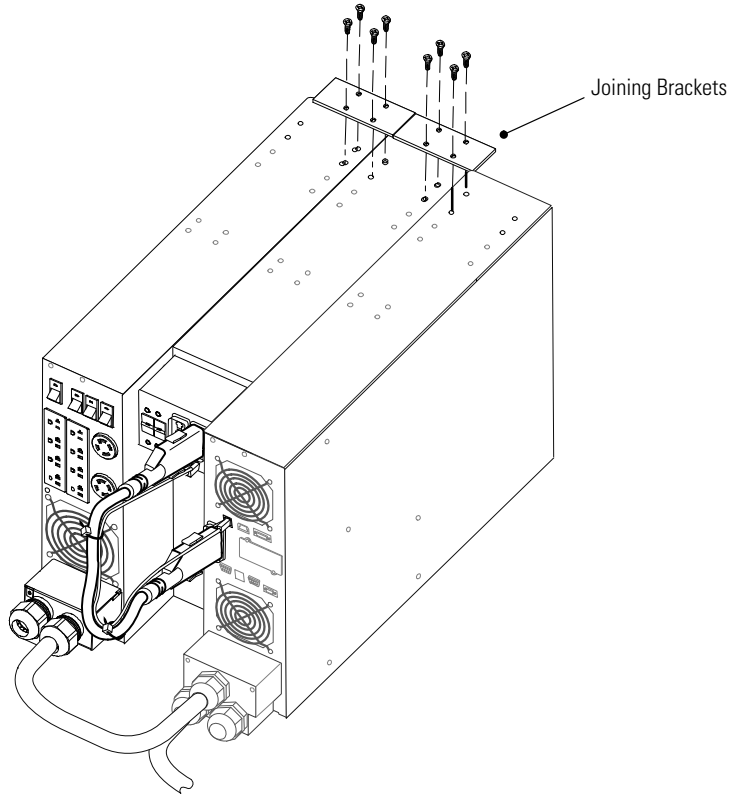


Figure 2. Joining Brackets (9PXTFMR11, 9PX 240V EBM, and 9PX 11k UPS shown)

6. Continue to "Electrical Installation" on page 15.

Rackmount Setup

NOTE *The order of a rackmount installation, from top to bottom, is the 9PX UPS, 9PX EBM, and the 9PX PPDM or 9PX Transformer.*

NOTE *First, install the rails in the rack. Then, install the cabinet on the rails.*

Installing the Rails

To install the rails in the rack:

1. Locate the rails and the mounting hardware in the rail kit accessory box.
2. Locate the position where you will install the 9PX PPDM or 9PX Transformer. (Install below the EBM if installed in this configuration, or below the UPS if the EBM is not installed in this configuration.)
3. Place the rails on the inside of the rack posts with the cabinet mounting flanges facing inside the rack. The **L** (Left) or **R** (Right) letter on the side of the rail should also face inside the rack (see Figure 3).
4. Slide the rail to fit between the vertical rack posts.
5. Secure each rail to the front and rear of the rack with two M6 × 12 mm screws (see Figure 3).

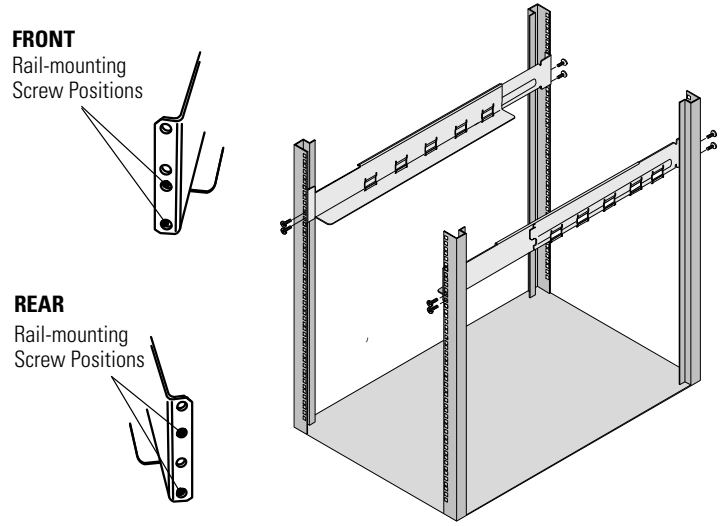


Figure 3. Attaching the Rails

6. Continue to the next section, "Installing the Cabinet."

Installing the Cabinet

To install the cabinet on the rails:

1. **Do this only if the UPS is already installed and operating:** Shut down the UPS before installing a 9PX PPDM or 9PX Transformer. Refer to shutdown instructions in the appropriate 9PX UPS user's guide for your system configuration.

2. Place the cabinet on a flat, stable surface with the front of the cabinet facing you.

3. Align the mounting brackets with the screw holes on the side of the cabinet. Install the mounting brackets (see Figure 4).

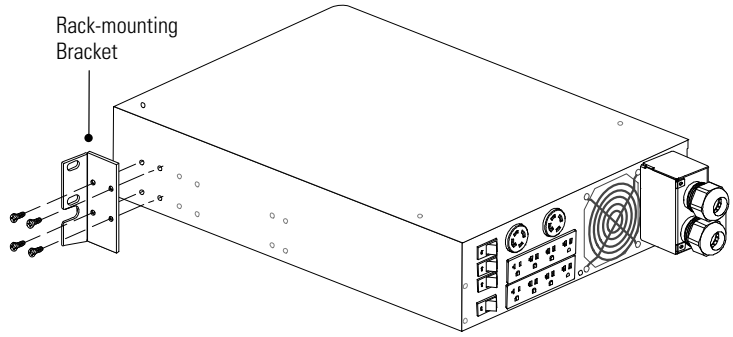


Figure 4. Installing Mounting Brackets

4. Set the rear of the cabinet on the cabinet mounting flanges and slide the cabinet into the rack (see Figure 5).

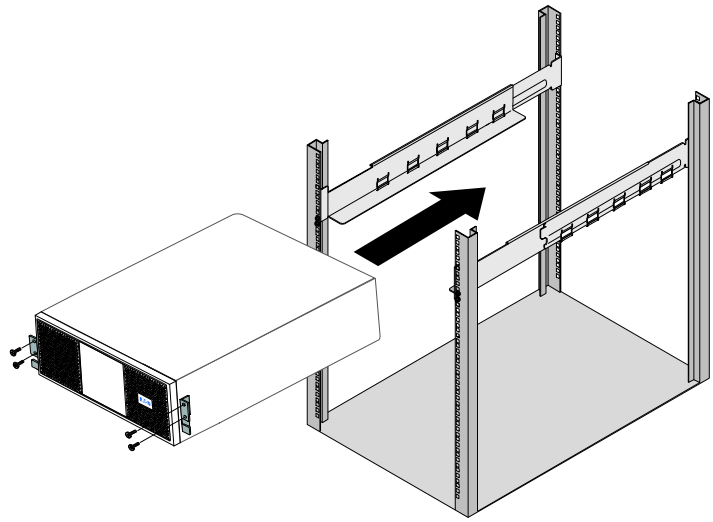


Figure 5. Installing the Cabinet in the Rack

5. Secure the front of the cabinet to the rack with two M6x12 mm round-head screws. Note the position of the screws in the installation front view (see Figure 6).

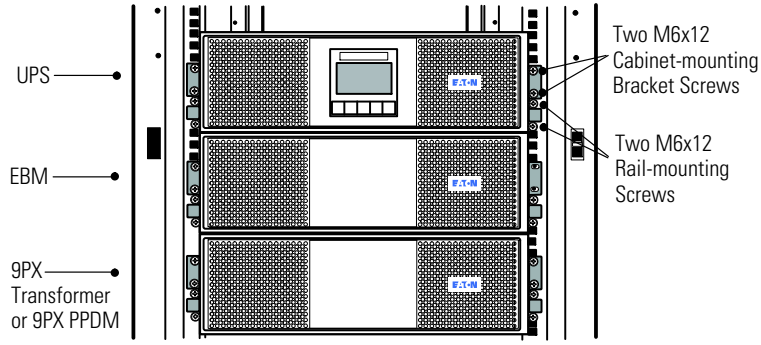


Figure 6. Cabinet installed in Rack (Front view)

6. Continue to "Electrical Installation" on page 15.

Chapter 4 Electrical Installation

This chapter provides electrical installation instructions for the Eaton 9PX PowerPass Distribution Modules (PPDMs) and 9PX Transformers.

WARNING

Risk of electrical shock. Only qualified service personnel (such as a licensed electrician) shall perform the electrical installation.

CAUTION

- To reduce the risk of fire, unit input connect only to a circuit provided with branch circuit overcurrent protection (30A for 9PXPPDM1, 9PXPPDM2, and 9PXTFMR5; 80A for 9PXTFMR11) in accordance with the National Electrical Code® (NEC®), ANSI/NFPA 70 or your local electrical code.
- For 9PXPPDM2 and 9PXTFMR11 only: For models with terminal-block wired outputs, overcurrent protection for the output AC circuit(s) is to be provided by others.
- For 9PXPPDM1 and 9PXTFMR5 only: For pluggable equipment:, the socket-outlet shall be installed near the equipment and shall be easily accessible.
- Disconnection Device. For 9PXPPDM2, a disconnect switch shall be provided by others for AC input and output circuit.
- Disconnection Device. For 9PXTFMR11, the disconnection device of the UPS used with this power distribution module also serves as the AC input disconnection device of this power distribution module. A disconnect switch shall be provided by others for AC output circuit.

NOTE *Do not make unauthorized changes to the 9PX UPS, 9PX PPDM, or 9PX Transformer models. Otherwise, damage may occur to your equipment and void your warranty.*

Table 3 lists the recommended input circuit breaker rating for 9PX PPDMs.

Table 3. Recommended Input Circuit Breaker Rating for 9PX PPDMs

9PX PPDM	Input Circuit Breaker Rating
9PXPPDM1	30A
9PXPPDM2	30A

9PXPPDM2 Electrical Installation

This section provides terminal block wiring requirements and electrical installation procedures for the 9PXPPDM2 model.

Requirements

The 9PXPPDM2 model requires a dedicated branch circuit that meets the following requirements:

- 30A circuit with short circuit and overcurrent protection
- 208/240 Vac
- Single phase
- 50/60 Hz
- Breaker must be wall-mounted and readily accessible to the operator
- Flexible metal conduit (recommended for ease of service and maintenance)

Figure 7 shows the 9PXPPDM2 block diagram. The 9PXPPDM2 I/O terminal block is hardwired.

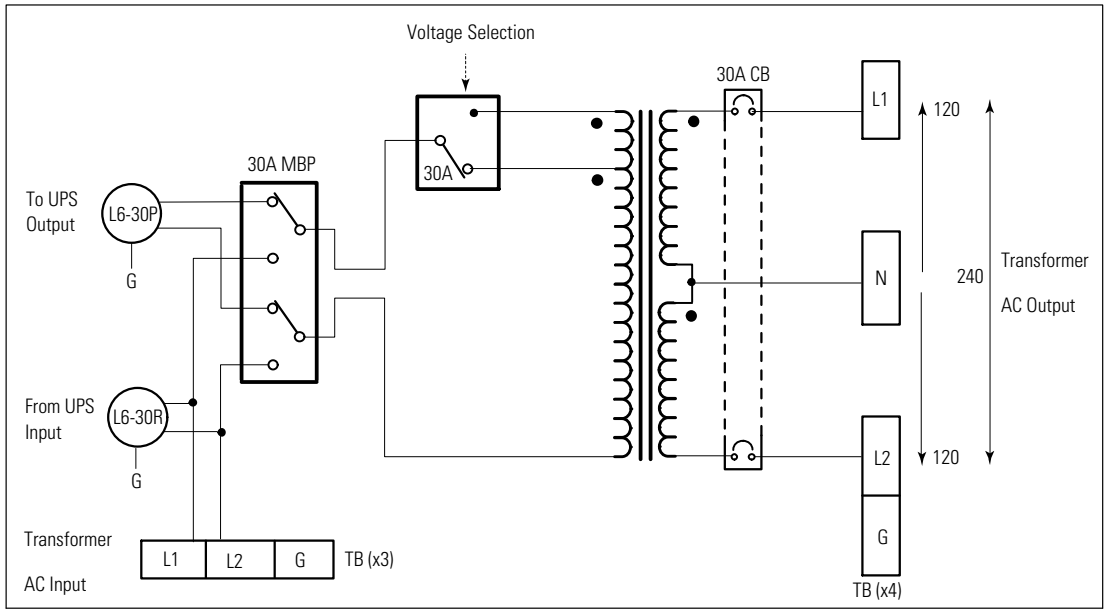


Figure 7. 9PXPPDM2 Block Diagram

Procedure

To wire the I/O terminal block for the 9PXPPDM2:

1. Switch off utility power at the distribution point where the 9PXPPDM2 model will be connected. Be absolutely sure there is no power.
2. Verify that the output circuit breaker is in the OFF position (see "Rear Panels" on page 52).
3. On the front cover, unsnap and remove the square center cover.
4. Verify that the bypass switch is in the UPS (normal) position:
   - If the bypass switch is set to UPS, replace the square center cover and go to Step 5.
   - If the bypass switch is set on Bypass, turn the bypass switch to the UPS (normal) position (see Figure 8). Replace the square center cover and go to Step 5.

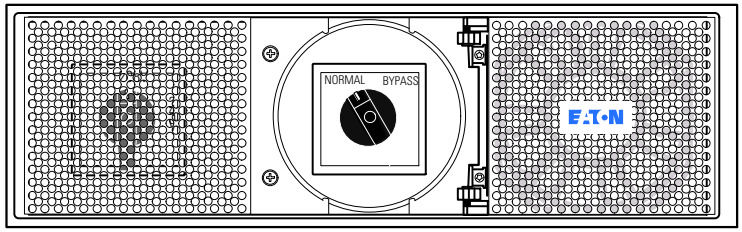


Figure 8. Resetting the Switch to UPS (Normal)

5. Use a Phillips-head screwdriver to remove the screw to detach the terminal block cover. Retain the cover and screw (see Figure 9).

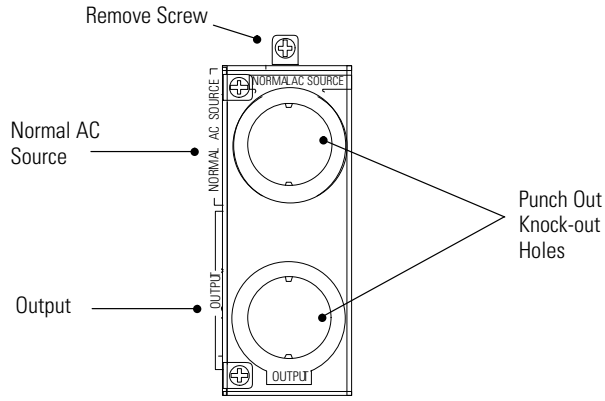


Figure 9. Removing the Terminal Block Cover

6. Punch out the pre-cut knock-out holes for the input and output conduit.

7. Pull the input and output wires through separate conduit, leaving approximately 0.5m (2 ft) of exposed wire. Attach a flexible metal fitting to the end of each conduit.

8. On the UPS, insert each conduit through a wiring access entry. Strip 9 mm (0.35") of insulation from the end of each incoming wire.

9. On the 9PXPPDM2 terminal block, wire the UPS connections (terminals 1–3) and attach the cable gland to the panel (see Figure 10 and Table 4).

10. To wire the load connections (terminals 4–6), observe the following:

    - Connect 4 and 6 (line to line) for 240V
    - Connect 5 and 6 (line to neutral) for 120V
    - Connect 4 and 5 (line to neutral) for 120V

11. Connect 7 (ground).

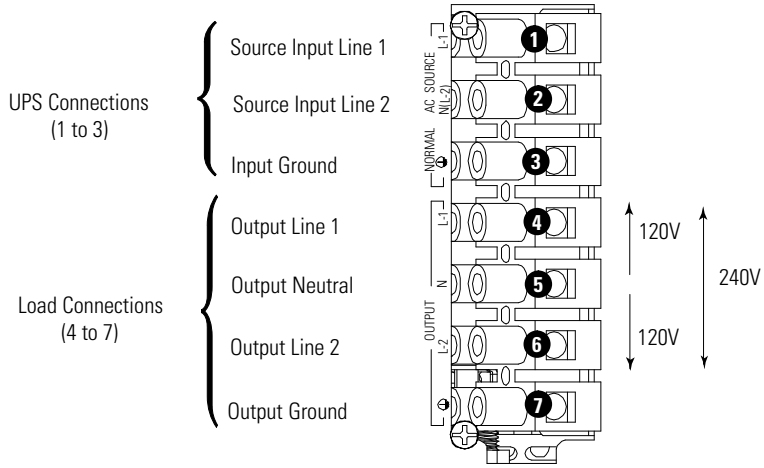


Figure 10. 9PXPPDM2 I/O Terminal Block

Table 4. 9PXPPDM2 Wiring Specifications

Terminal Position	9PXPPDM2 Wire Function	Terminal Wire Size Rating*	Tightening Torque
1	Source Input Line 1	10–16 mm^2 (8–6 AWG)	1.8 ±0.22 Nm (16 ±2 lb in)
2	Source Input Line 2		
3	Input Ground	6–16 mm^2 (10–6 AWG)	
4	Output Line 1	10–16 mm^2 (8–6 AWG)	
5	Output Neutral		
6	Output Line 2		
7	Output Ground	6–16 mm^2 (10–6 AWG)	

* Use 8 AWG for 9PXPPDM2 (75°C copper wire minimum).

12. Attach the cable gland to the panel.
13. Replace the terminal block cover and secure with screw.
14. Continue to "Voltage Selection" on page 27 to set the voltage selection.

9PXTFMR11 Electrical Installation

This section provides terminal block wiring requirements and electrical installation procedures for the 9PXTFMR11 model.

Requirements

The 9PXTFMR11 model requires a dedicated branch circuit that meets the following requirements:

- 80A circuit with short circuit and overcurrent protection
- 208/240 Vac
- Single phase
- 50/60 Hz
- Breaker must be wall-mounted and readily accessible to the operator
- Flexible metal conduit (recommended for ease of service and maintenance)

Figure 11 shows the 9PXTFMR11 block diagram. The 9PXTFMR11 I/O terminal block is hardwired. The voltage selection terminal block must be wired with flexible wiring.

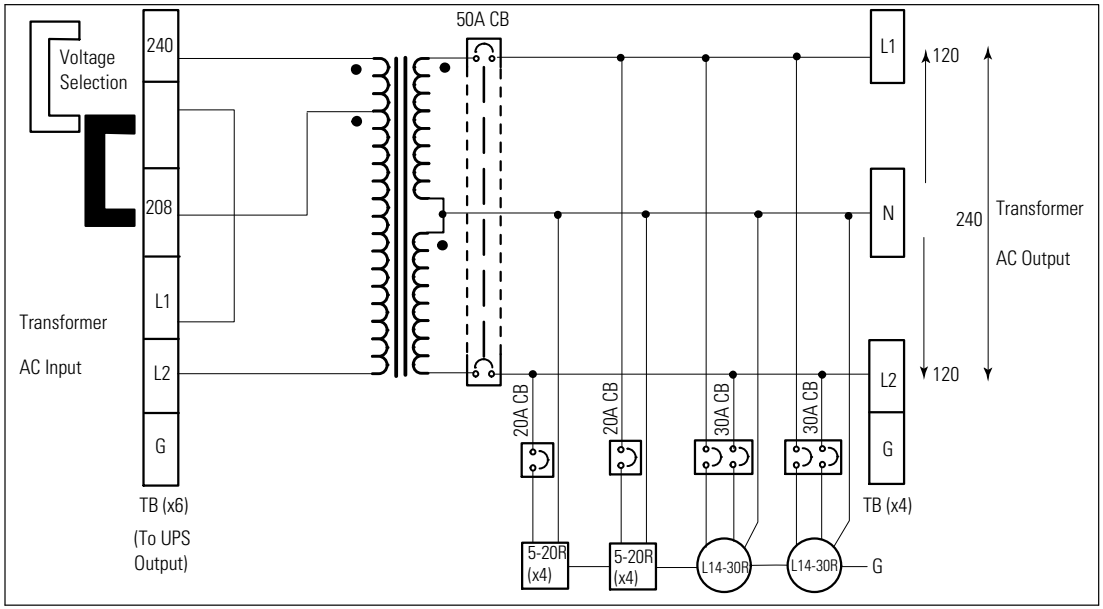


Figure 11. 9PXTFMR11 Block Diagram

Procedure

To wire the I/O terminal block for the 9PXTFMR11:

1. Switch off utility power at the distribution point where the 9PXTFMR11 model will be connected. Be absolutely sure there is no power.

2. Verify that the output circuit breaker is in the OFF position (see "Rear Panels" on page 52).

3. Use a Phillips-head screwdriver to remove the screw that secures the terminal block cover. Remove the cover. Retain the cover and screw (see Figure 12).

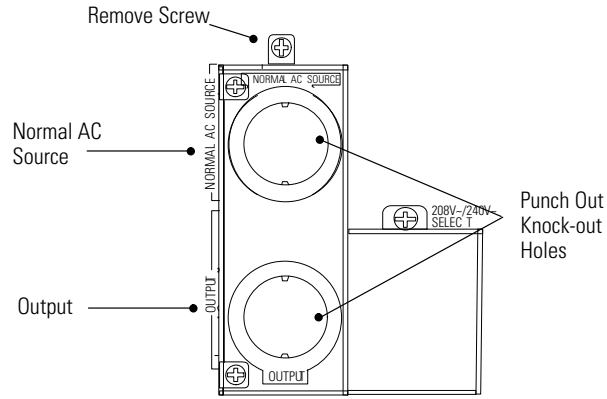


Figure 12. Removing the Terminal Block Cover

4. Punch out the pre-cut knock-out holes for the input and output conduit.

5. Pull the input and output wires through separate conduit, leaving approximately 0.5m (2 ft) of exposed wire. Attach a flexible metal fitting to the end of each conduit.

6. On the UPS, insert each conduit through a wiring access entry. Strip 9 mm (0.35") of insulation from the end of each incoming wire.

7. On the 9PXTFMR11 terminal block, wire the UPS connections 1-3 and attach the cable gland to the panel (see Figure 13 and Table 5).

8. Do you want to wire the connections for the load or use the receptacles?
   - For receptacles, go to Step 13.
   - For wired connections, go to Step 9.
9. To wire the load connections (terminals 4–6), observe the following:
   - Connect 4 and 6 (line to line) for 240V
   - Connect 5 and 6 (line to neutral) for 120V
   - Connect 4 and 5 (line to neutral) for 120V
10. Connect 7 (output ground).

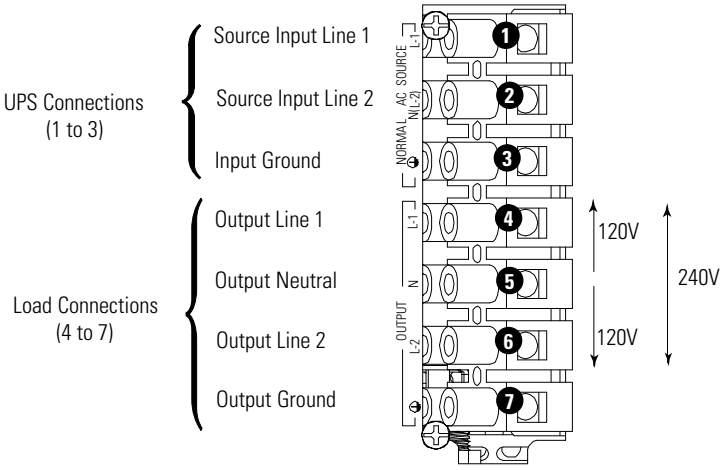


Figure 13. 9PXTFMR11 I/O Terminal Block

Table 5. 9PXTFMR11 Wiring Specifications

Terminal Position	Wire Function	Terminal Wire Size Rating*	Tightening Torque
	9PXTFMR11		
1	Source Input Line 1	6 AWG	1.8 ±0.22 Nm (16 ±2 lb in)
2	Source Input Line 2	6 AWG	
3	Input Ground	6 AWG	
4	Output Line 1	6 AWG	
5	Output Neutral	6 AWG	
6	Output Line 2	6 AWG	
7	Output Ground	6 AWG	

* Use 6 AWG for 9PXTFMR11 (90°C copper wire minimum).

11. Attach the cable gland to the panel.

12. Replace the terminal block cover and secure with screw.

13. Continue to "Voltage Selection" on page 27 to set the voltage selection.

9PXPPDM1 and 9PXTFMR5 Electrical Installation

This section provides terminal block wiring requirements and electrical installation procedures for the 9PXPPDM1 and the 9PXTFMR5 models.

Requirements

CAUTION

The 9PXPPDM1 and 9PXTFMR5 models require a 30A circuit with short circuit and overcurrent protection.

Figure 14 shows the 9PXPPDM1 block diagram.

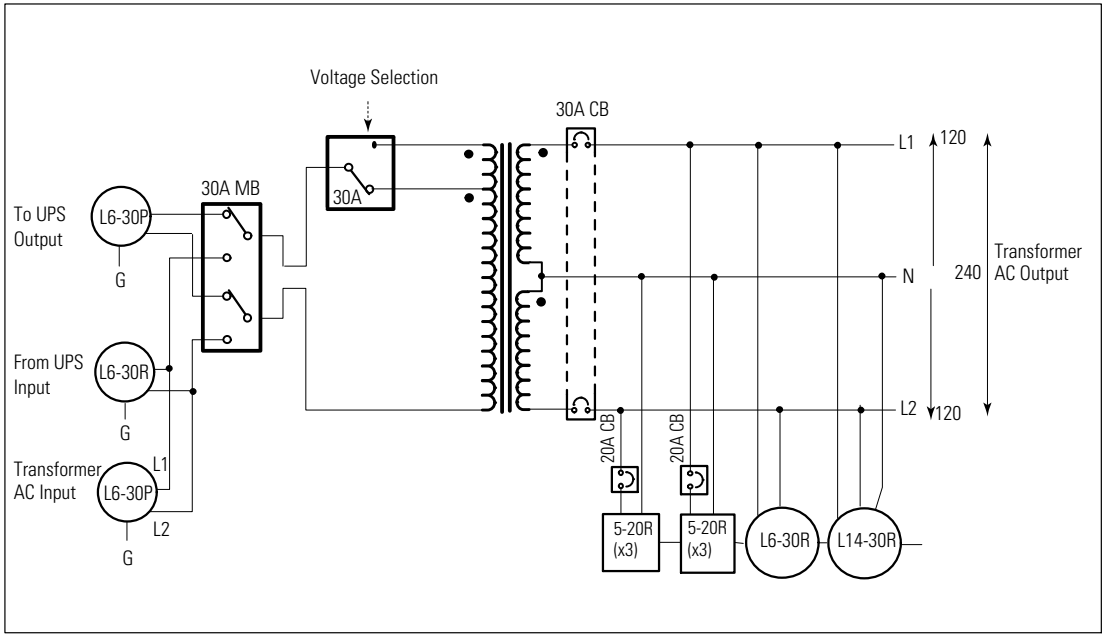


Figure 14. 9PXPPDM1 Block Diagram

Figure 15 shows the 9PXTFMR5 block diagram.

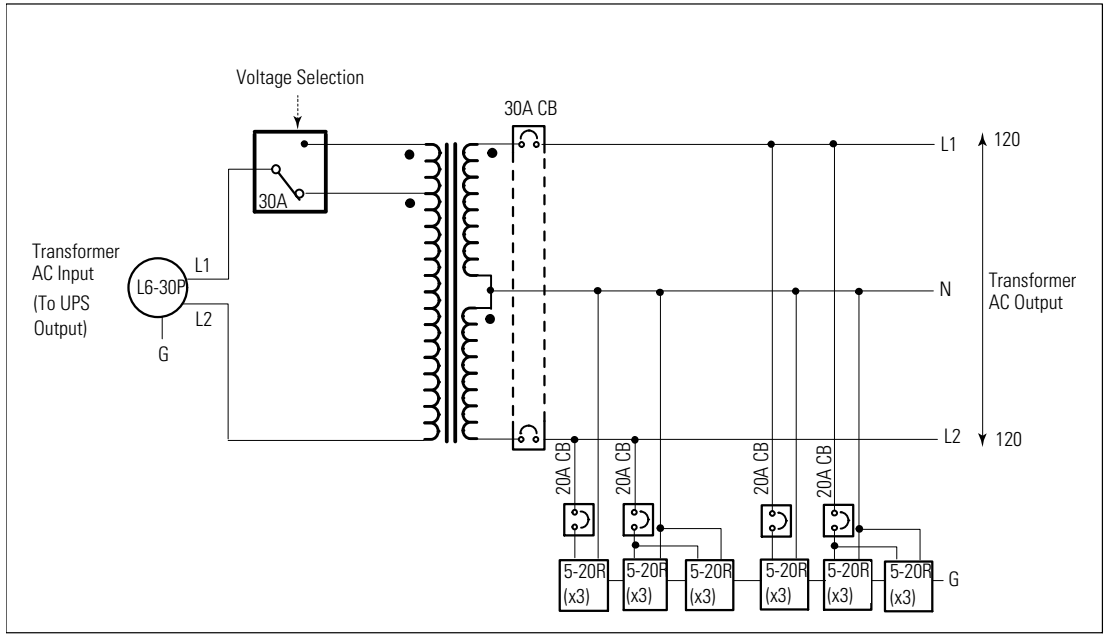


Figure 15. 9PXTFMR5 Block Diagram

Procedure

For the 9PXPPDM1 and 9PXTFMR5 plug-receptacle models:

1. Verify that the output circuit breaker is in the OFF position (see "Rear Panels" on page 52).
2. **9PXTFMR5 only**. Go to Step 5.
3. **9PXPPDM1 only**. On the front cover, unsnap and remove the square center cover.

4. Verify that the bypass switch is in the UPS (normal) position.

   - If the bypass switch is set to UPS, replace the square center cover and go to Step 5.
   - If the bypass switch is set on Bypass instead, turn the bypass switch to the UPS (normal) position (see Figure 16). Replace the square center cover and go to Step 5.

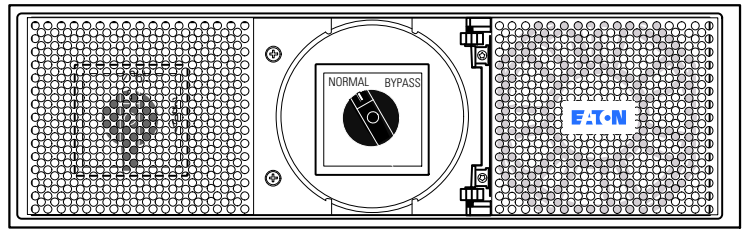


Figure 16. Resetting the Switch to UPS (Normal)

5. Continue to "Voltage Selection" on page 27 to set the voltage selection.

Chapter 5 Voltage Selection

This chapter provides the following voltage selection information for the Eaton 9PX PowerPass Distribution Modules (PPDMs) and 9PX Transformers.

NOTE *In most applications, the voltage setting does NOT need changing.*

All high voltage outlets, except the L14-30, use the UPS output voltage. The L14-30 and all low voltage receptacles use the transformer, and the voltage switch determines the voltage.

NOTE *The 9PXTFMR11 does not have a voltage switch. The voltage must be wired in the voltage selection terminal block.*

When the voltage selection is set to the 240V position with 240V input, the output voltage is 240/120V. When the voltage selection is set to 208V with 208V input, the output voltage is 240/120V.

See the input/output (I/O) voltage settings tables and specific procedures in this chapter to set the voltage selection for your equipment.

9PXPPDM1 and 9PXPPDM2 Voltage Selection

This section provides voltage settings and the voltage selection switching procedure for the 9PXPPDM1 and 9PXPPDM2 models.

Settings

See Table 6 for 9PXPPDM1 voltage settings. See Table 7 for 9PXPPDM2 voltage settings.

Table 6. 9PXPPDM1 I/O Voltage Settings

Input Voltage (from UPS)	9PXPPDM1 Output Voltage					
	208V Switch Position			Default 240V Switch Position		
	L6-30R	5-20R	L14-30R	L6-30R	5-20R	L14-30R
200	231	115	231/115	200	100	200/100
208	240	120	240/120	208	104	208/104
220	254	127	254/127	220	110	220/110
230	265	133	265/133	230	115	230/115
240	277	138	277/138	240	120	240/120

Table 7. 9PXPPDM2 I/O Voltage Settings

Input Voltage (from UPS)	9PXPPDM2 Output Voltage			
	208V Switch Position		240V Switch Position	
	HV	LV	HV	LV
200	231	115	200	100
208	240	120	208	104
220	254	127	220	110
230	265	133	230	115
240	277	138	240	120

Procedure

To change the 9PXPPDM1 or 9PXPPDM2 voltage switch position:

1. On the 9PXPPDM1 or 9PXPPDM2 front cover, unsnap and remove the square center cover.
2. Remove and retain the two left-side Phillips-head screws that secure the front cover (see Figure 17).

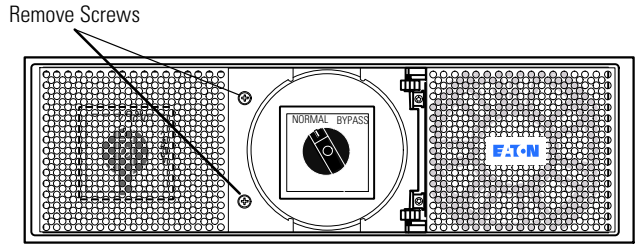


Figure 17. Remove the Front Cover Screws

3. Open the front cover from the left side (see Figure 18).

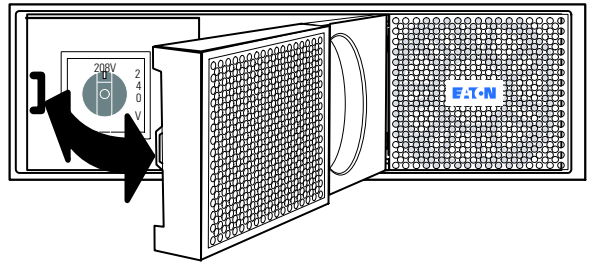


Figure 18. Open the Front Cover

4. Turn the switch to the selected voltage.
5. Close the front cover and secure it with the two Phillips-head screws.
6. Replace the square center cover.
7. For startup with the UPS, go to Chapter 4 “Startup” on page 35.

9PXTFMR5 Voltage Selection

This section provides voltage settings and the voltage selection switching procedure for the 9PXTFMR5 model.

Settings

See Table 8 for 9PXTFMR5 voltage settings.

Table 8. 9PXTFMR5 I/O Voltage Settings

Input Voltage (from UPS)	9PXTFMR5 Output Voltage	
	208V Switch Position	240V Switch Position
	5-20R	5-20R
200	115	100
208	120	104
220	127	110
230	133	115
240	138	120
250	144	125

Procedure

To change the 9PXTFMR5 voltage switch position:

1. On the 9PXTFMR5 front cover, unsnap and remove the square center cover.
2. Remove and retain the two left-side Phillips-head screws that secure the front cover (see Figure 19).

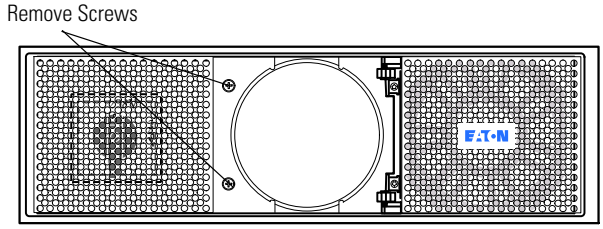


Figure 19. Remove the Front Cover Screws

3. Open the front cover from the left side (see Figure 20).

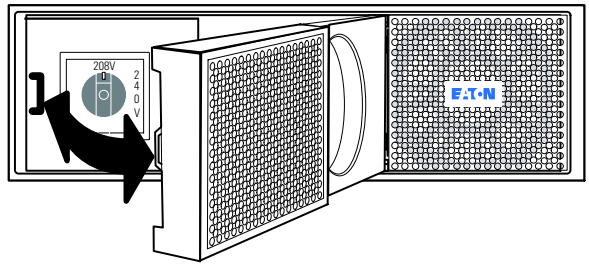


Figure 20. Open the Front Cover

4. Turn the switch to the selected voltage.
5. Close the front cover and secure it with the two Phillips-head screws.
6. Replace the square center cover.
7. For startup with the UPS, go to Chapter 4 “Startup” on page 35.

9PXTFMR11 Voltage Selection

This section provides voltage settings and the voltage selection terminal block wiring procedure for the 9PXTFMR11 model.

Settings

See Table 9 for 9PXTFMR11 voltage selection terminal block settings. See Table 10 for 9PXTFMR11 plug-receptacle voltages.

Table 9. 9PXTFMR11 I/O Voltage Settings for Voltage Selection Terminal Block

Input Voltage (from UPS)	9PXTFMR11 Output Voltage			
	208V Setting		240V Setting	
	HV	LV	HV	LV
200	231	115	200	100
208	240	120	208	104
220	254	127	220	110
230	265	133	230	115
240	277	138	240	120
250	288	144	250	125

Table 10. 9PXTFMR11 I/O Voltage Settings for Plug Receptacles

Input Voltage (from UPS)	9PXTFMR11 Output Voltage			
	208V Setting		240V Setting	
	5-20R	L14-30R	5-20R	L14-30R
200	116	231/115	100	200/100
208	121	240/120	104	208/104
220	128	254/127	110	220/110
230	134	265/133	115	230/115
240	139	277/138	120	240/120
250	144	288/144	125	250/125

Procedure

To wire the 9PXTFMR11 voltage selection:

1. On the 9PXTFMR11 rear panel, remove and retain the Phillips-head screw and voltage selection terminal block cover (see Figure 21).

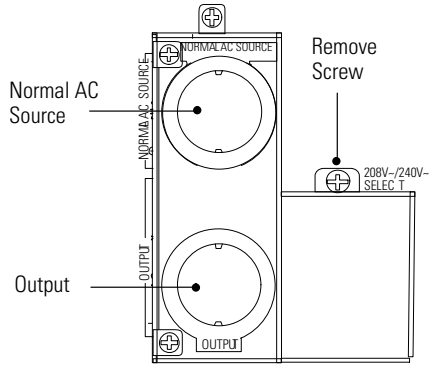


Figure 21. Remove the Voltage Selection Terminal Block Cover

2. On the voltage selection terminal block, use 6 AWG wire to connect a jumper from the middle terminal to either the 208V (left) or 240V (right) terminal (see Figure 22):

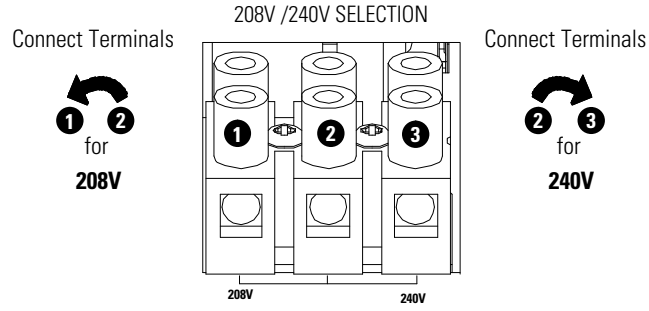


Figure 22. Wire Selected Voltage

3. Replace the voltage selection terminal block cover and secure it with the Phillips-head screw.

4. For startup with the UPS, go to Chapter 4 "Startup" on page 35.

Chapter 6 Startup

This chapter provides instructions for starting up Eaton 9PX PowerPass Distribution Modules (PPDMs) or 9PX Transformers with a 9PX 5000/6000/8000/11000 VA UPS. System configuration connection diagrams are also provided.

Startup with the UPS

To start up a 9PX PPDM or 9PX Transformer with the UPS:

NOTE *If you are installing a remote power-off (RPO) switch, install the switch before powering on the UPS. Refer to "RPO Installation" in the 9PX UPS user's guide for instructions.*

NOTE *Refer to the 9PX UPS user's guide for recommended upstream protection. For European models, also refer to the recommendations for downstream protection.*

NOTE *Before startup, refer to the 9PX UPS/EBM/MBP user's guides for additional configuration information.*

NOTE *To change the UPS default settings, refer to "Display Functions" in the UPS user's guide. Refer to the UPS user's guide for UPS operation.*

1. Ensure that the upstream circuit breaker is OFF.
2. Plug the input and output cords of the 9PX PPDM or 9PX Transformer model into the input and output connectors on the UPS (see "System Configuration Connections" on page 40 for connection illustrations).
3. Verify that the UPS internal battery connector is connected (refer to the UPS/EBM user's guide).
4. **For 8k or 11k EBM only.** Switch all battery circuit breakers to the ON (|) position (refer to the UPS/EBM user's guide).

5. Ensure that the main circuit breaker on the 9PX PPDM or 9PX Transformer is ON.

   The equipment is powered by utility power, but not protected by the UPS.

NOTE For 9PX PPDMs only. *If the bypass switch is set to Bypass, the load is powered by AC source, but still is not protected by the UPS.*

CAUTION

The 9PX PPDM output circuit breaker (disconnect switch) disconnects power to the output on the 9PX PPDM rear panel, but does NOT shut off power to the UPS (opening the upstream protection would be required).

   Batteries are recharging. An eight-hour recharge period is necessary to get full backup time.

6. Press and hold the ⏻ button until you hear the UPS beep (approximately three seconds).

   After the UPS is turned on, it conducts a self-test and enters Normal mode. The ~ indicator remains on, indicating that power is available to your equipment.

7. Confirm the UPS output voltage through the front panel and verify that it matches the 9PX PPDM or 9PX Transformer output voltage.

   For example, if the input to the UPS is 208V, then voltage selection should be 208V. (For voltage settings and voltage selection procedures for all models, see "Voltage Selection" on page 27.)

CAUTION

Failure to match the UPS output voltage may result in a hazardous condition, including damage to the UPS or to the load.

8. Does you model use hardwired or plug-receptacle load output connections for the equipment to be protected?

   For models that use hardwired load output connections, this procedure is completed.

   For models that use plug-receptacle load output connections, go the "Plug-Receptacle Connections."

Plug-Receptacle Connections

CAUTION

- DO NOT protect laser printers with the UPS because of the exceptionally high power requirements of the heating elements.
- Do not overload the 9PX PPDM or 9PX Transformers. For 120V output voltage, the output of L1 or L2 can only be half-loaded.

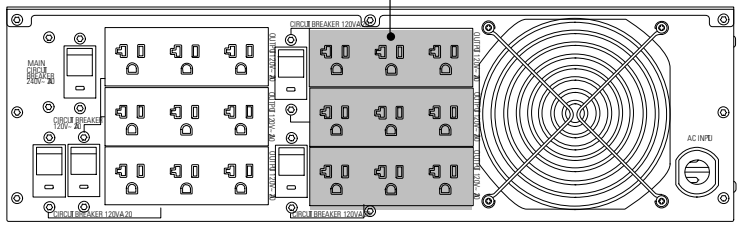
1. **9PXTFMR5, 9PXTFMR11 (plug-receptacle/terminal-block wired option), and 9PXPPDM1 models only.** Plug the L1 or L2 connections for the equipment to be protected into the appropriate L1 or L2 receptacle group as illustrated in Figure 23 through Figure 28.

CAUTION

- Observe the appropriate load output limits when connecting for your model.

9PXTFMR5 L1 Receptacle Group

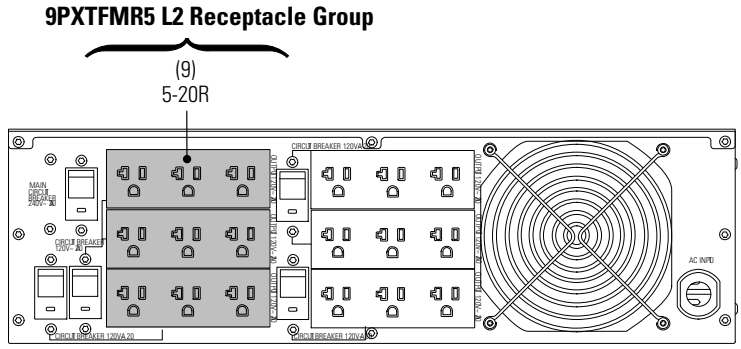
(9)
5-20R



208V: When the input voltage is 208V, the total output current maximum for the L1 receptacle group is 22.1A.

240V: When the input voltage is 240V, the total output current maximum for the L1 receptacle group is 22.5A.

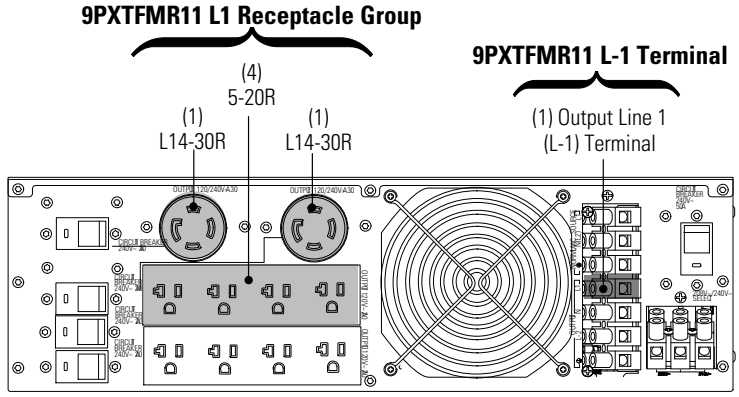
Figure 23. 9PXTFMR5 L1 Load Output Limits



208V: When the input voltage is 208V, the total output current maximum for the L2 receptacle group is 22.1A.

240V: When the input voltage is 240V, the total output current maximum for the L2 receptacle group is 22.5A.

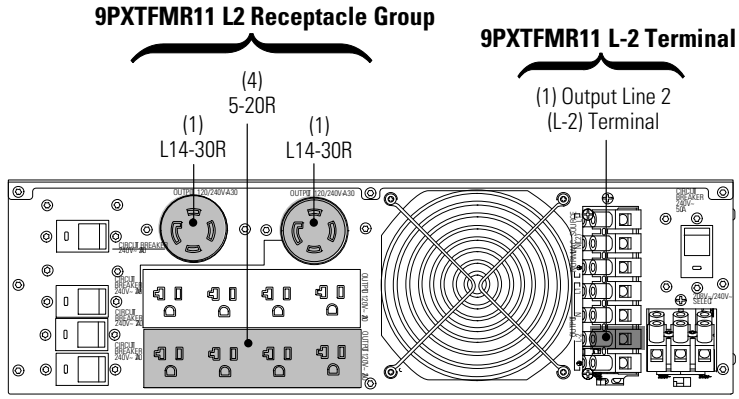
Figure 24. 9PXTFMR5 L2 Load Output Limits



208V: When the input voltage is 208V, the total output current maximum is 41.7A for either the L1 receptacle group or the L-1 terminal.

240V: When the input voltage is 240V, the total output current maximum is 45.8A for either the L1 receptacle group or the L-1 terminal.

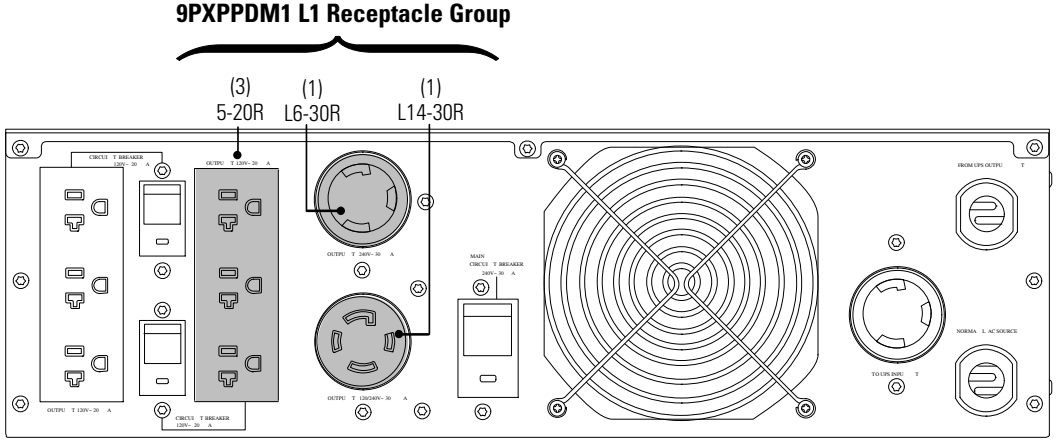
Figure 25. 9PXTFMR11 L1/L-1 Load Output Limits



208V: When the input voltage is 208V, the total output current maximum is 41.7A for either the L2 receptacle group or the L-2 terminal.

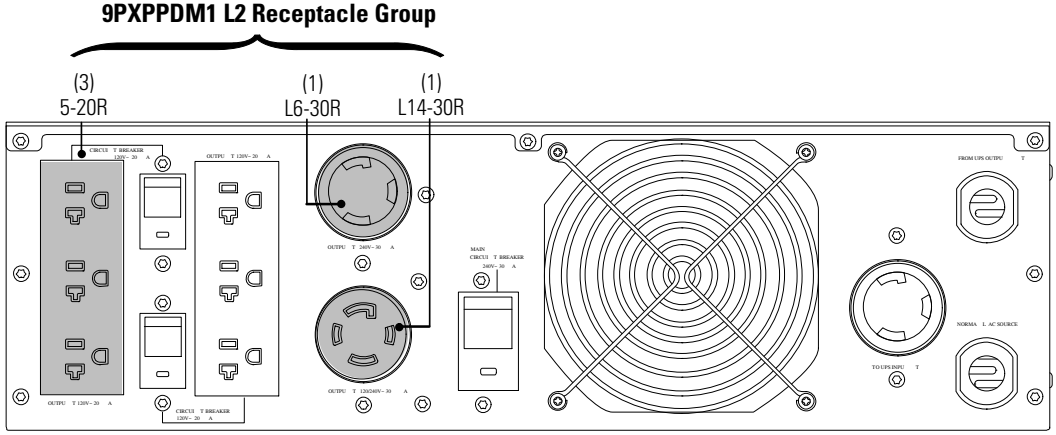
240V: When the input voltage is 240V, the total output current maximum is 45.8A for either the L2 receptacle group or the L-2 terminal.

Figure 26. 9PXTFMR11 L2/L-2 Output Limits



208V: When the input voltage is 208V, the total output current maximum for the L1 receptacle group is 22.1A.
240V: When the input voltage is 240V, the total output current maximum for the L1 receptacle group is 22.5A.

Figure 27. 9PXPPDM1 L1 Load Output Limits



208V: When the input voltage is 208V, the total output current maximum for the L2 receptacle group is 22.1A.
240V: When the input voltage is 240V, the total output current maximum for the L2 receptacle group is 22.5A.

Figure 28. 9PXPPDM1 L2 Load Output Limits

System Configuration Connections

This section provides illustrations of 9PX PPDM and 9PX Transformer system configuration connections.

NOTE *The installation diagrams in this section depict rack configurations. Although the orientation is different, the system connections are the same for tower configurations.*

NOTE *Refer to the UPS user's guide for additional installation and system configuration information.*

NOTE *Note the following:*

- *For 9PX Transformer configurations, the AC input from the 9PX Transformer connects to the UPS, then the UPS connects to the Mains.*
- *For 9PX PPDM configurations, the AC input of the 9PX PPDM connects to the Mains.*
- *For configurations with an MBP or EBM, refer to the appropriate MBP or EBM user's guide for installation and system configuration information.*

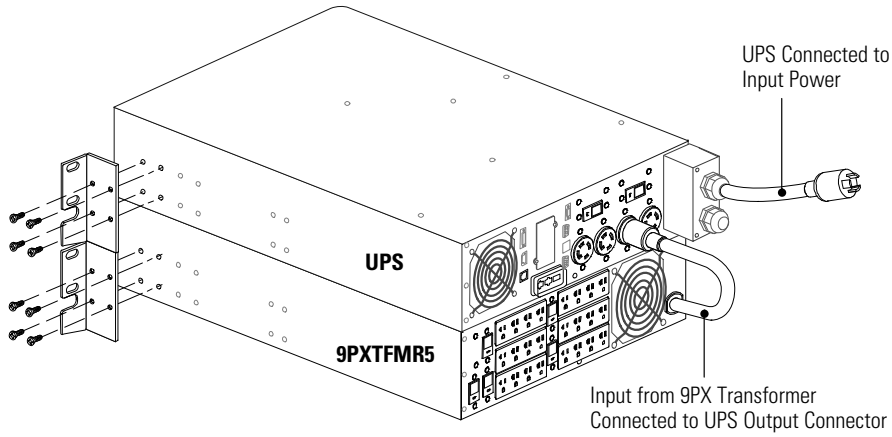


Figure 29. 9PXTFMR5 with 9PX5000 or 9PX6000 UPS (Kits 9PX5KTF5 and 9PX6KTF5)

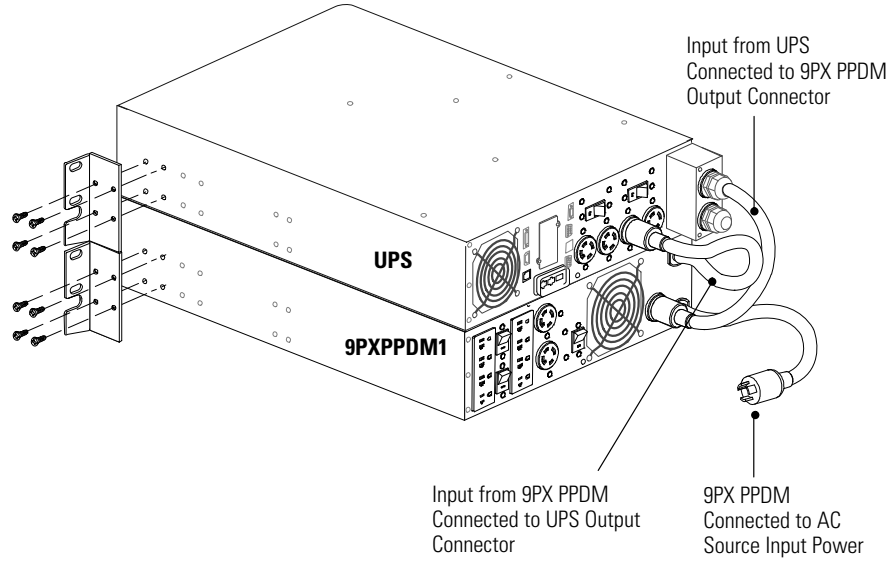


Figure 30. 9PXPPDM1 with 9PX5000 or 9PX6000 UPS (Kits 9PX5KP1 and 9PX6KP1)

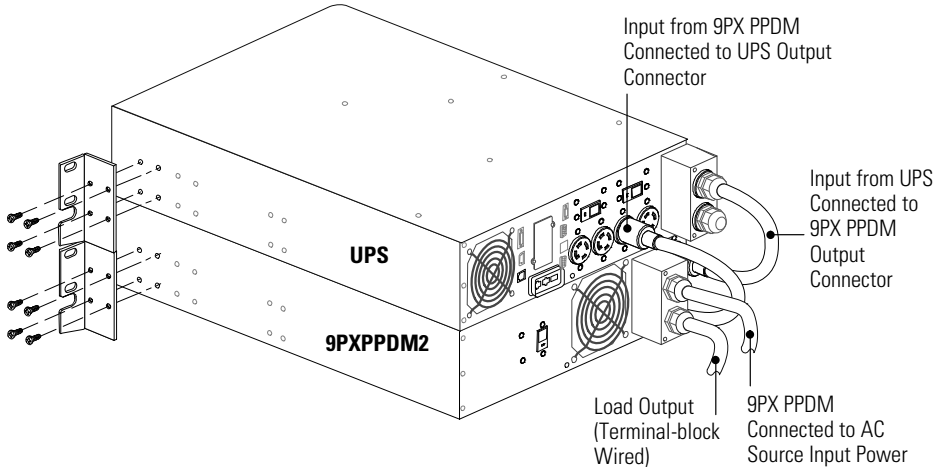

Input from 9PX PPDM Connected to UPS Output Connector
Input from UPS Connected to 9PX PPDM Output Connector
UPS
9PXPPDM2
Load Output (Terminal-block Wired)
9PX PPDM Connected to AC Source Input Power

Figure 31. 9PXPPDM2 with 9PX5000 or 9PX6000 UPS (Kits 9PX5KP2 and 9PX6KP2)

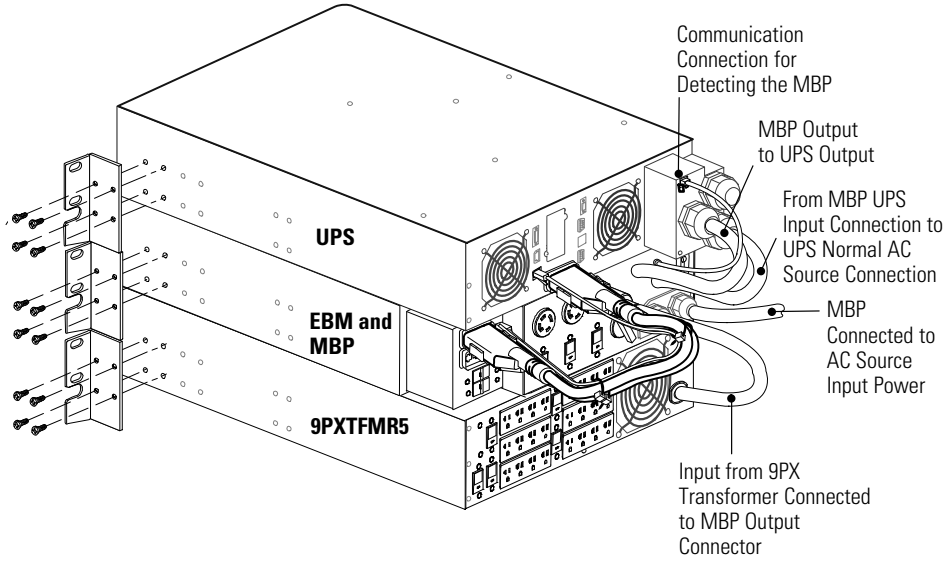

Communication Connection for Detecting the MBP
MBP Output to UPS Output
From MBP UPS Input Connection to UPS Normal AC Source Connection
MBP Connected to AC Source Input Power
UPS
EBM and MBP
9PXTFMR5
Input from 9PX Transformer Connected to MBP Output Connector

Figure 32. 9PXTFMR5, 11k 240V EBM, and 11k MBP with 9PX8000 or 9PX11000 UPS (Kits 9PX8KTF5 and 9PX11KTF5)

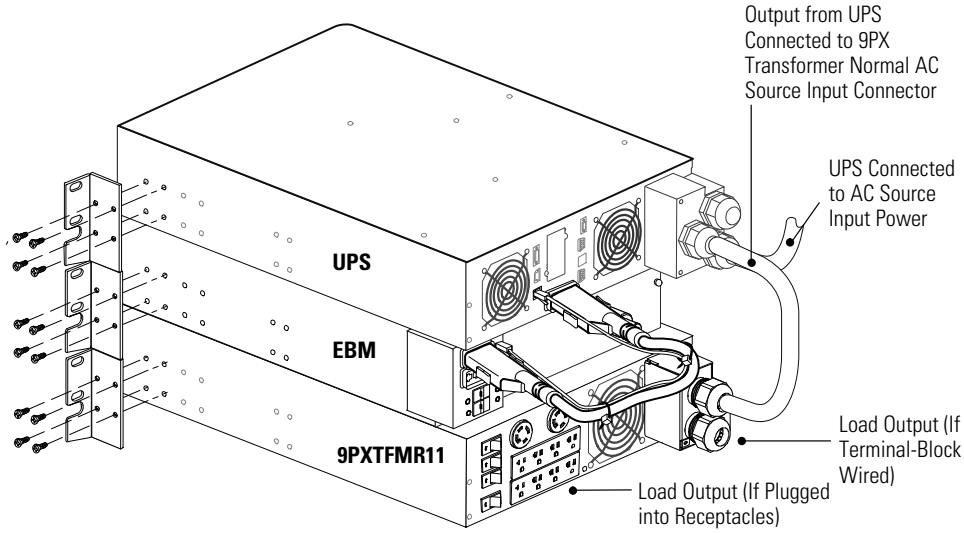


Figure 33. 9PXTFMR11 and 11k 240V EBM with 9PX11000 UPS (Kit 9PX11KTF11)

Chapter 7 Maintenance Bypass

This chapter provides maintenance bypass information for the Eaton 9PX PowerPass Distribution Modules (PPDMs).

NOTE *Refer to the 9PX UPS/EBM user's guide for operation information.*

The Maintenance Bypass feature allows you to remove the UPS while providing power to your protected equipment. This feature is useful when replacing the UPS for maintenance or upgrades.

The Maintenance Bypass feature is resident on the 9PXPPDM1 and 9PXPPDM2 models.

NOTE *You can assemble a system configuration that provides maintenance bypass by adding a 9PX Maintenance Bypass (MBP). See Figure 32 on page 42 for an illustration of that configuration.*

Using Maintenance Bypass

To transfer your equipment to maintenance bypass (AC Line operation) and remove the UPS:

1. Using the UPS LCD menu (Control > Go to Bypass), place the UPS in Bypass mode. The ⊸● indicator displays, indicating the UPS is in bypass mode.
2. On the 9PX PPDM front cover, unsnap and remove the square center cover.
3. Turn the bypass switch on the 9PX PPDM to the BYPASS position (see Figure 34). The 9PX PPDM is now powering your equipment from utility power.

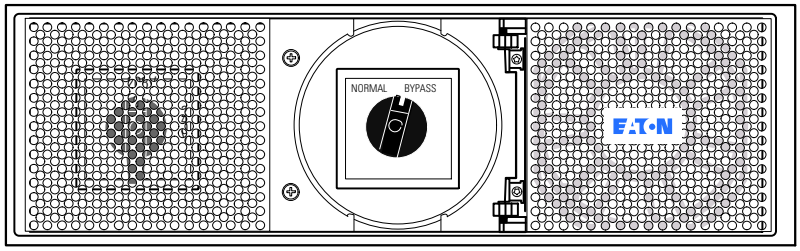


Figure 34. Setting the Bypass Switch to Bypass

4. Replace the 9PX PPDM square center cover.

5. Press the ⏻ button on the UPS for approximately three seconds. The UPS turns Off.

6. If optional Extended Battery Modules (EBMs) are installed, switch the battery circuit breaker on the first EBM rear panel to the Off (O) position.

7. Unplug and disconnect cables before removing the UPS:

   Unplug the EBM cable and the EBM communication cable from the UPS.

   Disconnect the 9PX PPDM input and output cords from the UPS (see "System Configuration Connections" on page 40 for connection illustrations).

8. Remove the UPS.

Return to Normal UPS Protection

To reinstall the UPS and transfer your equipment from Maintenance Bypass (AC Line operation) to the UPS:

1. If optional Extended Battery Modules (EBMs) are installed, switch the battery circuit breaker on the first EBM rear panel to the On (|) position.

2. Plug the input and output cords of the 9PX PPDM model into the input and output connectors on the UPS (see "System Configuration Connections" on page 40 for connection illustrations).

3. Press and hold the ⏻ button on the UPS until you hear the UPS beep (approximately three seconds). The ~ indicator remains On.

4. Using the UPS LCD menu, force the UPS to Bypass (Control > Go to bypass). The ⊸● indicator displays, indicating the UPS is in bypass mode.

5. If the 9PX PPDM voltage switch is set to 208V, confirm the UPS output voltage through the front panel (refer to the UPS user's guide).

6. On the 9PX PPDM front cover, unsnap and remove the square center cover.

7. Turn the bypass switch on the 9PX PPDM to the UPS (normal) position (see Figure 35).

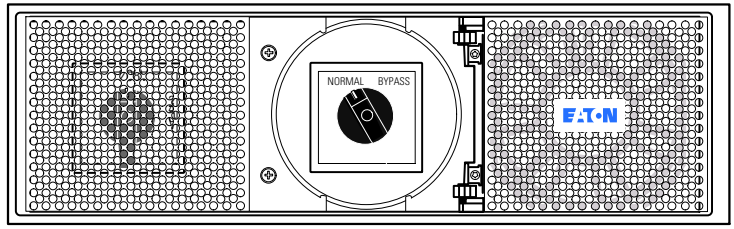


Figure 35. Setting the Bypass Switch to UPS (Normal)

8. Using the UPS LCD menu, force the UPS to Normal mode (Control > Go back Normal). The ~ indicator remains on, indicating that your equipment is now protected by the UPS.

9. Reinstall the 9PX PPDM square center cover.

Chapter 8 Specifications

This chapter provides product specifications and rear panel diagrams for the Eaton 9PX PowerPass Distribution Modules (PPDMs) and 9PX Transformers.

Specification Tables

Table 11. Mechanical and Environmental

	9PXTFMR5	9PXPPDM1	9PXPPDM2	9PXTFMR11
Operating Temperature	0°C to 40°C (32°F to 104°F)			
Storage Temperature	-22°C to 55°C (-7°F to 131°F)			
Relative Humidity	0–95% noncondensing			
Altitude	10% derating over 1000m (The altitude shall not exceed 3000m.)			
Dimensions (WxDxH)	440 × 645 × 130 mm 17.3″25.4 × ″ × 5.1″	440 × 645 × 130 mm 17.3″25.4 × ″ × 5.1″	440 × 685 × 130 mm 17.3″ × 27.0″ × 5.1″	440 × 700 × 130 mm 17.3″ × 28.0″ × 5.1″)
Weight	43.5 kg (96 lb)	44.5 kg (98 lb)	44.5 kg (98 lb)	85 kg (187 lb)

Table 12. Input Specifications

Model Number	Input (Sine Wave Waveform)				
	Input Voltage	Input Current	Input Voltage Range (UPS on Bypass AC Mode)	Frequency Range	Input Protection
9PXTFMR5	208V/240V	24A	Full load above 200V	60 Hz (± 3 Hz)	none
9PXPPDM1	208V/240V	24A	Full load above 187V	46-65 Hz	none
9PXPPDM2	208V/240V	24A	Full load above 187V	46-65 Hz	Upstream UL 489 type, 30A double-pole CB (not supplied)

Model Number	Input Voltage	Input Current	Input Voltage Range (UPS on Bypass AC Mode)	Frequency Range	Input Protection
9PXTFMR11	208V	48A	Full load above 187V	46-65 Hz	Upstream UL 489 type, 80A double-pole CB (not supplied)
	240V	42A	Full load above 187V	46-65 Hz	Upstream UL 489 type, 80A double-pole CB (not supplied)

Table 13. Output Specifications

Model Number	Nominal Power	Output (Sine Wave Waveform)				
		Output Voltage	Efficiency	Voltage Adjustable	Frequency Range	Output Protection
9PXTFMR5	5000 VA, 5000W	120V (× 2) isolated	>92% Linear Load	4%	60 Hz (± 3 Hz)	(1) UL 489 type, 30A double-pole CB (4) UL 489 type, 20A CB
9PXPPDM1	6000 VA, 6000W	120V (× 2) isolated 240V (× 1) isolated	>95% Linear Load	4%	46-65 Hz	(1) UL 489 type, 30A double-pole CB (2) UL 489 type, 20A CB
9PXPPDM2	6000 VA, 6000W	120V (× 2) isolated 240V (× 1) isolated	>95% Linear Load	4%	46-65 Hz	(1) UL 489 type, 30A double-pole CB Downstream UL 489 type (not supplied)
9PXTFMR11	10000 VA, 10000W	120V (× 2) isolated 240V (× 1) isolated	>96% Linear Load	4%	46-65 Hz	(1) UL 1077 type, 50A double-pole CB (2) UL 489 type, 30A double-pole CB (2) UL 489 type, 20A CB Downstream UL 489 type (not supplied)

Table 14. Standards

Safety Conformance	IEC 62040-1:2008, UL 1778 4th; CSA C22.2
Agency Markings	cULus, CE, NOM
EMC (Class A)	IEC 62040-2:2006 categories C2, CISPR22 Class A, FCC Part 15, Class A

Table 15. Power Connections

Model	Input Connection	Output Outlets
9PXTFMR5	(1) L6-30P, power cord 0.9m (2.3 ft)	(18) 5-20R
9PXPPDM1	(1) L6-30P, power cord 0.9m (2.3 ft)	(1) L14-30R; (1) L6-30R; (6) 5-20 R
9PXPPDM2	Hardwired Terminal Block 65A/250V × 3)	Hardwired Terminal Block 65A/250V × 4
9PXTFMR11	Hardwired Terminal Block 65A/250V × 3)	Hardwired Terminal Block 65A/250V × 4 and plug receptacles (2) L14-30R; (8) 5-20 R

Rear Panels

This section provides rear panel illustrations of the 9PX PPDM and 9PX Transformer models.

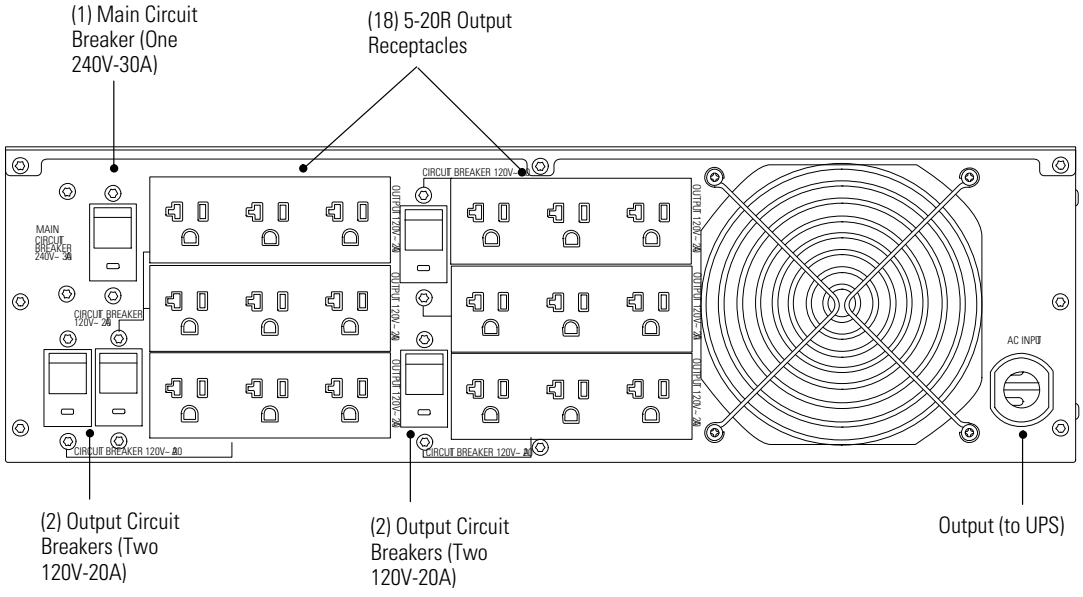

(1) Main Circuit Breaker (One 240V-30A)
(18) 5-20R Output Receptacles
MAIN CIRCUIT BREAKER 240V- 30A
CIRCUIT BREAKER 120V- 20A
CIRCUIT BREAKER 120V- 20A
CIRCUIT BREAKER 120V- 20A
AC INPUT
(2) Output Circuit Breakers (Two 120V-20A)
(2) Output Circuit Breakers (Two 120V-20A)
Output (to UPS)

Figure 36. 9PXTFMR5

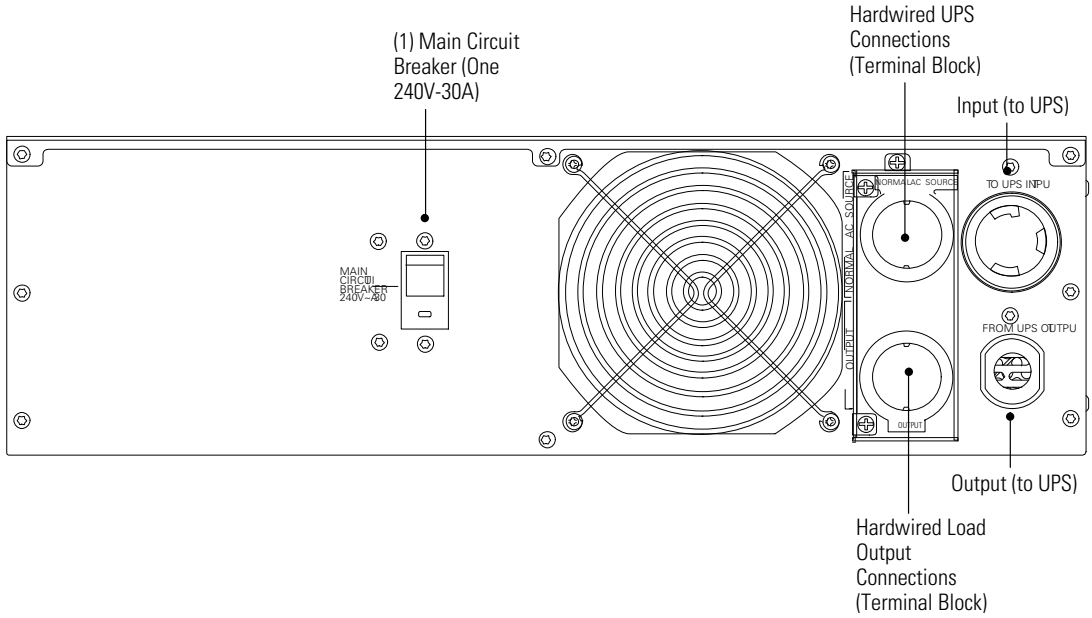

(1) Main Circuit Breaker (One 240V-30A)
Hardwired UPS Connections (Terminal Block)
Input (to UPS)
NORMAL AC SOURCE
TO UPS INPUT
FROM UPS OUTPUT
Output (to UPS)
Hardwired Load Output Connections (Terminal Block)

Figure 37. 9PXPPDM2

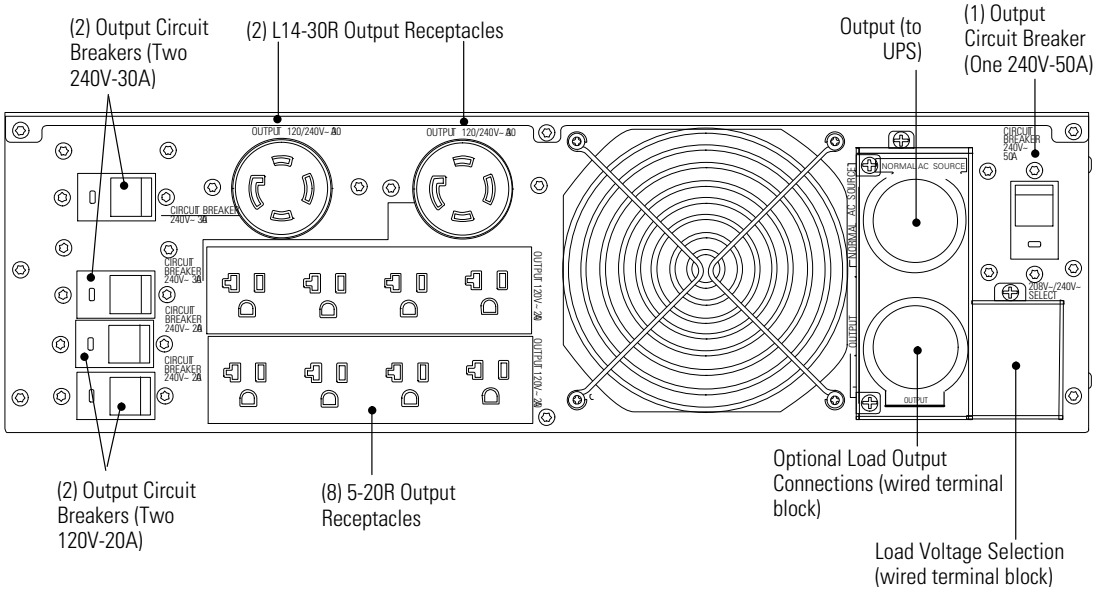

(2) Output Circuit Breakers (Two 240V-30A)
(2) L14-30R Output Receptacles
Output (to UPS)
(1) Output Circuit Breaker (One 240V-50A)
NORMAL AC SOURCE
(2) Output Circuit Breakers (Two 120V-20A)
(8) 5-20R Output Receptacles
Optional Load Output Connections (wired terminal block)
Load Voltage Selection (wired terminal block)

Figure 38. 9PXTFMR11

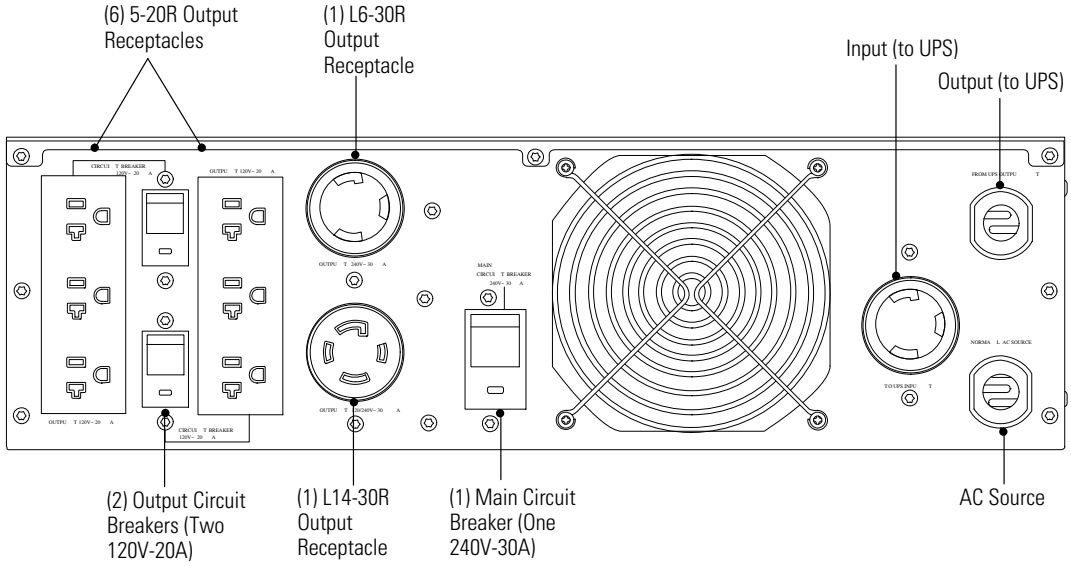

(6) 5-20R Output Receptacles
(1) L6-30R Output Receptacle
Input (to UPS)
Output (to UPS)
(2) Output Circuit Breakers (Two 120V-20A)
(1) L14-30R Output Receptacle
(1) Main Circuit Breaker (One 240V-30A)
AC Source

Figure 39. 9PXPPDM1

Chapter 9 Service and Support

If you have any questions or problems with the UPS, call your **Local Distributor** or the **Help Desk** at one of the following telephone numbers and ask for a UPS technical representative.

United States:	1-800-356-5737 or 1-919-870-3149
Canada:	1-800-461-9166 ext 260
All other countries:	Call your local service representative

Please have the following information ready when you call the Help Desk:

- Model number
- Serial number (located behind the UPS front cover)
- Version number (if available)
- Date of failure or problem
- Symptoms of failure or problem
- Customer return address and contact information

If repair is required, you will be given a Returned Material Authorization (RMA) Number. This number must appear on the outside of the package and on the Bill Of Lading (if applicable). Use the original packaging or request packaging from the Help Desk or distributor. Units damaged in shipment as a result of improper packaging are not covered under warranty. A replacement or repair unit will be shipped, freight prepaid for all warrantied units.

NOTE *For critical applications, immediate replacement may be available. Call the* ***Help Desk*** *for the dealer or distributor nearest you.*